



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,347	07/14/2003	F. Paul Silverman	VAL6131P0591US	6353

7590

09/18/2006

WOOD, PHILLIPS, KATZ, CLARK & MORTIMER
Citicorp Center, Suite 3800
500 West Madison Street
Chicago, IL 60661-2511

EXAMINER

CLARDY, S

ART UNIT	PAPER NUMBER
----------	--------------

1617

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,347

Applicant(s)

SILVERMAN ET AL.

Examiner

S. Mark Clardy

Art Unit

1617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1617

Claims 20-26 are pending in this application which claims benefit of US Provisional Application 60/433,830, filed December 16, 2002.

Applicants' claims are drawn to methods adding an herbicidally enhancing effective amount¹ of a Systemic Acquired Resistance (SAR) inducer² to photosystem II (PSII) inhibiting herbicides³. While the methods are claimed as methods of enhancing herbicidal activity, the sole method step is simply the addition of the SAR inducer compound to the herbicidal component. The method claims may thus be seen as simply method of making claims, i.e., methods of mixing components.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-26 are again rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Klepper⁴ and Ryals et al⁵.

Klepper, again, teaches combining SA with PSII inhibiting herbicides, i.e., atrazine, bentazon, cyanazine, diuron, metribuzin, norea, phenmedipham, and prometryn (p. 175) in aqueous solution, with the concentration of the PSII herbicide at 300 ppm (= µg/ml) and salicylic acid at 500 ppm (p. 174, "Materials", 2nd para). Calculated in moles, the concentrations are as follows:

¹ claims 20, 21: between 2 and 20 moles SA; claim 22: between 1 and 5 moles acibenzolar

² salicylates (SA), hydroxypicolinic acid, acibenzolar (=BTH), dichloroisonicotinic acid, (di)chlorosalicylic acid

³ atrazine, bentazon

⁴ Klepper. "Synergistic Levels of Nox Emissions from Soybean Leaves Caused by a Combination of Salicylic Acid and Photosynthetic Inhibitor Herbicides". *Pesticide Biochemistry and Physiology*. 32:173-179. 1988.

Art Unit: 1617

atrazine (216 g/mole)	0.0014 M
bentazon (240 g/mole)	0.0013 M
salicylic acid (138 g/mole)	0.0036 M

Thus the SA:herbicide ratios are:

Atrazine:SA	1:2.6
Bentazon:SA	1:2.8

Applicants' bentazon:SA ratio range of 1:2.1 to 1:12.5 (claim 21) encompasses the above ratio of 1:2.8. While the atrazine:SA ratio above (1:2.6) is below that envisioned by applicants (1:4 to 1:20, claim 20), it would remain obvious from the teachings of the prior art to optimize the range.

Again, one of the stated goals was to determine whether SA could act as a synergist (p. 174, 2nd col, lines 1-5). Klepper concludes that while SA does act as a synergist (p. 178), other salicylates may be more persistent and therefore more practical or effective (p. 179). As stated above, Klepper does not explicitly teach application of these combinations to plants as a method of enhancing herbicidal activity. It does, however, clearly suggest the herbicidal method in the paragraph bridging pages 173-174, wherein the accumulation of NO_x is discussed as the mechanism of action for the PI (i.e., PSII) herbicides: "NO_x evolution is closely related to intact leaf nitrite content. Free nitrite, nitrous acid, and free radical NO_x gases are highly toxic to basic plant metabolic systems." (footnotes omitted). Thus, while not testing the combinations on intact, live plants, Klepper clearly suggests that the application of SA will synergistically enhance the activity of PSII herbicides. However, inasmuch as the claims herein have combining the two components as the single method step, it would appear that Klepper at the very least teaches the step of mixing these components.

⁵ Ryals et al. "Systemic Acquired Resistance". *The Plant Cell*. 8:1809-1819. October 1996.

Art Unit: 1617

Ryals et al, again, teach that SA, acibenzolar (BTH), and other compounds are known activators of SAR. One of ordinary skill in the art of plant growth regulating compounds would be motivated to substitute the SA of Klepper with a compound such as acibenzolar because Ryals et al teach their equivalent activity in plants as SAR activators.

Thus, again, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have combined SA or other SAR inducers such as acibenzolar, with PSII inhibiting herbicides such as atrazine or bentazon, because Klepper suggests the enhanced herbicidal utility of such compositions, and because SA and acibenzolar are both known signaling molecules which are useful for stimulating SAR in plants. The teachings of the prior art would suggest to the ordinary artisan that the biochemical signaling characteristics of SA and acibenzolar are interchangeable.

Again, determination of appropriate concentrations or ranges is within the skill level of the ordinary artisan.

No unobvious or unexpected results are noted; no claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

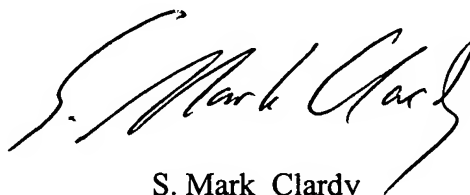
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

Art Unit: 1617

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "S. Mark Clardy". The signature is fluid and cursive, with a large, sweeping initial "S" and a long, horizontal flourish extending to the right.

S. Mark Clardy
Primary Examiner
Art Unit 1617

September 14, 2006